

Cubic spline solutions for two-point boundary value problems using quarter-sweep SOR method

Abstract

In this paper, iterative methods particularly a family of Successive Over Relaxation (SOR) methods are used to solve system of linear equations generated from discretization of second-order two-point boundary value problems through cubic spline approaches. For the proposed problems, family of SOR methods namely Full-Sweep SOR (FSSOR), Half-Sweep SOR (HSSOR) and Quarter-Sweep SOR (QSSOR) has been considered to be the generated linear solver. In addition, the formulation and implementation of these three proposed methods were also presented. Comparison among all tested SOR methods were carried out to show their performance.